


Implementing video visits into an orthopedic hip arthroscopy practice: a case study

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ABSTRACT

Telehealth videoconferencing has been shown to be feasible, cost-effective and safe in numerous fields of medicine. In an effort to increase access and improve the quality of care offered to patients we implemented a telehealth initiative allowing for remote orthopedic clinic visits at a major academic medical center. Here we report on our experience and early outcomes. A telehealth platform was launched for a single fellowship trained orthopedic surgeon at a major academic hospital in August 2018. New patients residing outside the metro area, all return patients and patients with an uncomplicated post-operative course were offered the option to complete patient encounters remotely via a telehealth platform. Each patient was offered a Patient Satisfaction Survey following video visit. Patient zip codes were used to estimate patient commutes. Ninety-six percent of patients agreed/strongly agreed with the statement 'I was satisfied with my Telehealth experience' while 51% agreed/strongly agreed with the statement 'This visit was just as good as a face to face visit'. In all, 94% of patients agreed/strongly agreed with the statement 'Having a telehealth visit made receiving care more accessible for me'. The median miles saved on commutes were 123.3 miles. The no show rate for telehealth visits was 8.2% versus 3.2% for in-person ($P < 0.001$). Telehealth video visits provided patients with a modality for completing orthopedic clinic visits while maintaining a high-quality care and patient satisfaction. Patient convenience was optimized with video visits with elimination of long commutes. Level of evidence: IV.

INTRODUCTION

Recent policy and payment reforms aim to reshape the US healthcare system to deliver high value, population-based care. Technology is shaping this transformation with telehealth as a key component that offers to improve access and reduce cost for all stakeholders. COVID has accelerated this transformation and is exposing a great number of patients and providers to telehealth. Despite telehealth taking several forms including provider-to-provider e-consults and remote patient monitoring, video visits are often seen as synonymous with telehealth while videoconferencing in care delivery dates back to the 1990s [1]. Since this time studies have investigated the feasibility [2–4], cost-effectiveness [5, 6] and safety [7] of providing remote orthopedic consultations via video. Despite a growing body of

literature and evolving technology, implementation of video visits is limited [8, 9].

A majority of the telemedicine body of literature for orthopedics has been based out of hospital systems in countries with universal healthcare where the payment system supports and incentivizes telehealth. The current hybrid system of the United States makes implementation of telehealth initiatives more complicated. Medicare, the largest US payor, has historically been a barrier to telehealth implementation as coverage of video-visits was only offered to rural-based beneficiaries. The Centers for Medicare and Medicaid Services introduced policy which will broaden telehealth benefits for Medicare Advantage beneficiaries in 2020. With this policy comes new opportunity for providers to increase the quality of care offered to patients

through telehealth technologies in the United States. These policy changes are essential to the growth of telehealth and experiences from the field are necessary to inform the evolution of that policy.

Hip preservation patients stand to benefit from expansion of telehealth services. Outcomes following hip arthroscopy are improved when performed by a high-volume surgeon [10–12]. With a consistent rise in the annual frequency of arthroscopic hip procedures a large percentage are being performed by lower volume surgeons [10, 12, 13]. Telehealth may represent an avenue for increasing the access of hip preservation patients to high volume surgeons without undue travel burden on the patient. Increased expansion of video visits will be fueled by policy changes, reports of peer experience and external factors such as the COVID-19 crisis. Peer experience can reduce uncertainty and help inform the roadmap to implementation. The purpose of this case study was to report the early results of implementing video visits into a quaternary orthopedic practice, focusing on patient satisfaction, patient experience and patient convenience relative to traditional physical visits. The period over which these video visits were evaluated was *pre-COVID*.

CASE

Beginning in August 2018, video clinic visits were offered to patients by a single sports fellowship trained orthopedic surgeon specializing in hip arthroscopy at a quaternary academic hospital. Patients were given the option to complete patient encounters remotely via a video visit platform integrated with the electronic health record. Video visits were offered to new patients residing outside the metro area who were referred by a peer, all return patients and patients with an uncomplicated post-operative course. Overall, visit types included routine post-operative visits, non-operative treatment follow-up, imaging review and new patients referred by known colleagues. Participation in video visits required patients to create an account in a patient portal connected to the EMR. Following enrollment and scheduling of a video visit, patients received written instructions via the patient portal regarding downloading and testing of the telehealth platform on their computer, tablet or smart phone. If patients required further assistance with on boarding process a telehealth technician was available via telephone to provide verbal instructions.

Each patient was sent via email a Patient Satisfaction Survey following their video visit. The survey consisted of questions in which participants were asked to ‘Strongly Disagree’, ‘Disagree’, ‘Neither Agree nor Disagree’, ‘Agree’ or ‘Strongly Agree’ with statements regarding the technical

logistics of completing a video visit as well as patient satisfaction with their visit.

Patient miles saved was calculated based on the distance between the patient’s home address and a static latitude and longitude for clinic location. The mileage was calculated as a straight-line mileage and was thus a conservative estimate. Commute time saved was calculated assuming an average travel speed of 50 miles per hour and gallons of gas saved were calculated assuming 25 miles per gallon consumption.

Chi-square analysis was used for statistical analysis.

CASE RESULTS

Two-hundred thirty-six clinic video visits were completed from August 2018 to April 2020. During this time period, 1629 physical visits were also captured for comparison of no-show rate (Table I). The no show rate for video visits were 8.2% versus a rate of 3.2% for physical visit ($P < 0.001$) (Table I). Forty-nine patients completed the post-video visit patient satisfaction survey (Table II). The results of the survey are summarized in Figs. 1 and 2. Of note, 89% of responders agreed/strongly agreed with the statement ‘I connected easily to my video visit’. 96% agreed/strongly agreed with the statement ‘I was satisfied with my Telehealth experience’ while 51% agreed/strongly agreed with the statement ‘This visit was just as good as a face to face visit’. When asked how likely patients would be to recommend video visits to a friend on a scale from 0 to 10, with 0 being unlikely and 10 being extremely likely, the median score was 9 (IQR 2.5).

Median miles saved for patients were 123.3 miles per video visit equating to an estimated median 2.5 h commuting and 8.8 gallons of gas saved per visit (Table III).

Table I. Demographics

	<i>Video visit</i>	<i>Physical visit</i>
Number of visits (<i>n</i>)	236	1629
New (<i>n</i>)	31	—
Return (<i>n</i>)	156	—
Post-op (<i>n</i>)	49	—
Males (%)	25	—
Age, median (years)	41	—
Age, IQR (years)	25.3-55	—
No show rate	8.2%	3.2% ($P < 0.001$)

Table II. Video visit survey respondent demographics

Number of respondents	49
Location at time of video visit	
Home	84%
Other	16%
Type of device used	
Personal computer	65%
Mobile phone	27%
Tablet	4%

DISCUSSION

With the continued evolution of telecommunication technologies and capabilities comes the potential to improve patient healthcare access and convenience through telehealth platforms. Our case study demonstrates that video

Table III. Video visit patient experience metrics

	Median	Q1	Q3
Miles saved	123.3	26.0	276.3
Travel time saved	2.47	0.52	5.52
Gallons of gas saved	4.93	1.04	11.05

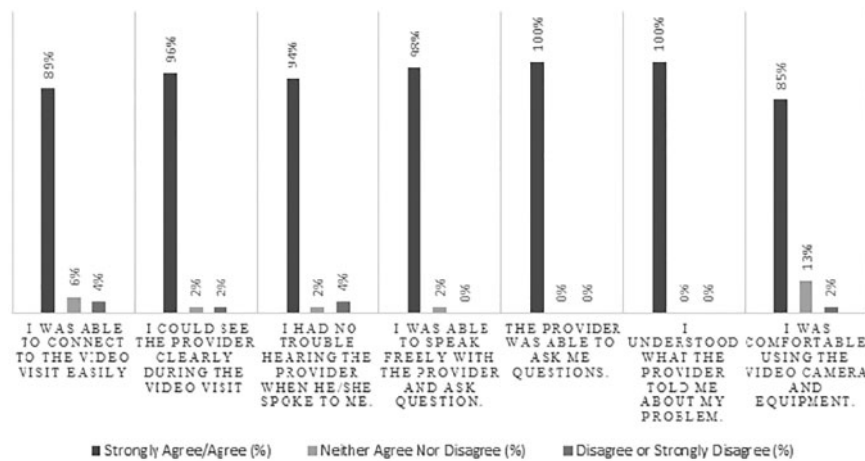


Fig. 1. Summary of post-video visit survey answers—ease of use.

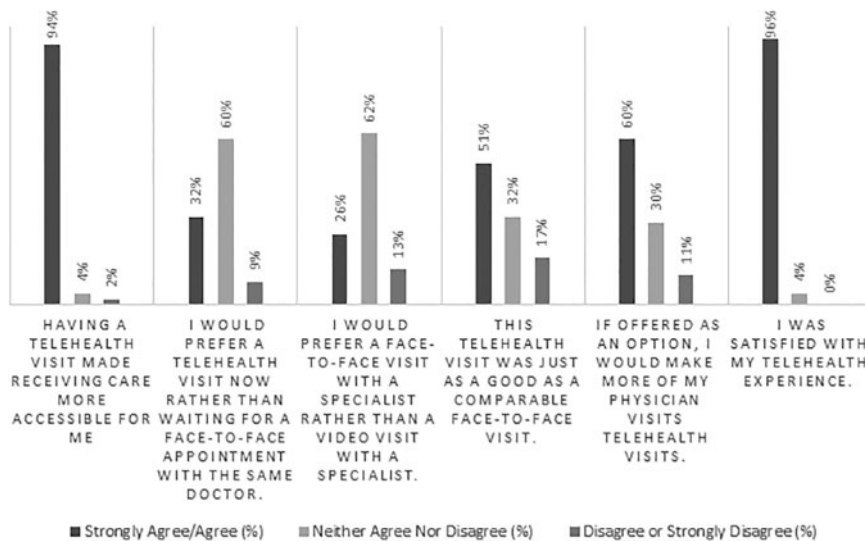


Fig. 2. Summary of post-video visit survey answers—patient satisfaction.

visits are technically feasible and acceptable to the patient while generating significant patient convenience and benefit.

As a quaternary referral hospital system with a wide geographic catchment area many of our patients travel long distances seeking care. This can place undue stress on a patient's resources and represents a significant barrier to receiving care. The benefit of video visits to patient convenience and access to care can be seen in the median travel miles saved. With a median of 123 miles saved representing a 2.5 h commute the convenience to patients was immense. These time savings can mitigate lost productivity of seeking care for musculoskeletal conditions.

Patients reported high levels of satisfaction and minimal technical difficulties with the telehealth experience. In the post-visit survey, 96% were satisfied with their telehealth experience and 94% indicated the telehealth visit made care more accessible. When asked if telehealth visits would be preferred over face-to-face visits 32% agreed, 60% neither agreed nor disagreed and only 9% disagreed. The combination of half of patients indicating their video visit was equal in quality to an in-person visit and the substantial miles and time savings to the patient highlights that video visits have a real opportunity to improve the value and experience of quality of care and should increase in adoption both in the COVID and post-COVID era. Perhaps the most telling finding was the median web promoter score of 9 (IQR 2.5) which indicates a high likelihood a patient would recommend telehealth services to a friend.

Alternatively, convenience to physicians was equivocal. While video visits potentially allow a physician to perform clinical duties in any location, the no-show rates were found to be statistically significantly higher for video visits. This may represent issues with early adoption of a new technology by patients.

Our findings corroborate prior work assessing implementation of orthopedic telehealth. A randomized control trial out of Dublin, Ireland looking at in-person versus web-based follow up following total joint replacement found that patient satisfaction in a usual-care group compared similarly with a web-based follow up group with 'extremely or very satisfied' rates of 82% and 76%, respectively. They also found that 44% of patients preferred the web-based method versus 36% preferred the usual method [14]. Similarly, a systematic review including four studies in which 1:1 videoconferencing was utilized in an orthopedic setting reported that patient's found videoconferencing to be an acceptable modality for provider interaction. The studies included were published by groups

in Canada, Sweden and United Kingdom. The review found the common themes of punctuality of specialist, saved travel time and patient economic factors as drivers of acceptability [15].

Other studies have also reported on the economic impact of offering patient care via videoconferencing. A study out of Norway assessing use of videoconferencing for orthopedic consultations found telehealth consultations to be cost effective with a savings of 65 Euros per patient consultation [5]. A clinical effectiveness and cost analysis study out of Finland reported a direct cost savings of 45% with videoconferencing for patient referrals versus usual in-person care [16].

There are some limitations to our reported findings. Patients utilization of a video visit was elective introducing a potential bias as participants may have been more likely to be confident with the videoconferencing or have had past positive experiences or perceptions of telehealth. The patient survey was self-developed based on patient satisfaction surveys used for standard clinic visits; however, it was not a validated questionnaire. Patient satisfaction survey response rate was 20.1% which may have introduced bias to the results. While response rate was low relative to many survey studies [17], it should be noted that it was within range of expected response rate for patient satisfaction surveys as seen with Press Ganey survey scores [18–20]. Given the recent emphasis on these metrics and tying of physician reimbursement to Press Ganey scores, our survey results remain relevant to the implementation of video visits in a current practice. There were no equivalent patient satisfaction survey results from in-person clinic visits to compare rates. While a direct comparison cannot be made between the scores, the average Press Ganey score for in-person visits for the provider was 4.78 out of 5 suggesting similarly high overall patient satisfaction.

CONCLUSION

To our knowledge this is the first United States based case study assessing implementation of a telehealth platform offering patients remote video clinic visits in an orthopedic practice prior to onset of COVID-19. The results of this case study indicate completion of visits via videoconferencing provides a modality for providing convenient and satisfactory care to patients.

CONFLICT OF INTEREST STATEMENT

None declared.

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